



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,704	07/12/2001	Joseph M. Rinaldis	4121-4	4760
22442	7590	11/17/2004	EXAMINER	
SHERIDAN ROSS PC 1560 BROADWAY SUITE 1200 DENVER, CO 80202			JEAN GILLES, JUDE	
			ART UNIT	PAPER NUMBER
			2143	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/904,704

Applicant(s)

RINALDIS ET AL.

Examiner

Jude J Jean-Gilles

Art Unit

2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 12 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) * | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>07/12/01</u> . | 6) <input type="checkbox"/> Other: _____ |

This office action is responsive to communication filed on 07/12/2001.

Information Disclosure Statement

1. The references listed on the Information Disclosure Statement submitted on 07/12/2001 have been considered by the examiner (see attached PTO-1449A).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, and 6-8 are rejected under 35 U.S.C. 102(e) as being unpatentable by Barkley et al (U.S. Patent No. 6,389,493 B1).

Regarding claim 1: Barkley et al teach a method for controlling data transfer between a host and a plurality of storage devices (*fig. 1, item 110; column 3, lines 5-29*), comprising:

receiving data for storage at a transport master, wherein said data for storage is addressed to said transport master (*fig. 1, item 112 ; column 1, lines 55-61; it is important to note that the master card coupled to the bus is our transport master*);

receiving said data for storage at a transport slave, wherein said data for storage is addressed to said transport master, and wherein said data for storage is received at

said transport master and said transport slave substantially simultaneously (*fig. 1, item 116; column 1, lines 55-67; column 2, lines 1-3; it is important to note that the slave cards are the transport slave*);

providing from said transport master said data for storage to a first device interface (*fig. 1, items 124, 126, and 130; column 4, lines 30-37*);

providing from said transport slave said data for storage to a second device interface (*fig. 1, items 218, 220, and 222; column 8, lines 57-65*);

storing said data for storage on a first device (*fig. 1, items 124, 126, and 130; column 4, lines 30-37*); and

storing said data for storage on a second device (*fig. 1, items 218, 220, and 222; column 8, lines 57-65*).

Regarding claim 2: Barkley et al teach the method of claim 1, further comprising:

receiving a request for data at said transport master, wherein said request for data is addressed to said transport master (*column 2, lines 10-16*);

receiving said request for data at said transport slave, wherein said request for data is addressed to said transport master (*column 9, lines 12-16*);

providing from said transport master said request for data to said first device interface (*column 6, lines 34-39, and 49-56*);

providing from said transport slave said request for data to said second device interface (*column 9, lines 12-16*); and

retrieving said requested data from said first device and from said second device, wherein in a normal operating mode said requested data from said first device is provided by said transport master to said host and said requested data from said second device is not provided to said host (*column 2, lines 4-16*).

Regarding claim 6: Barkley et al teach the method of claim 1, wherein in a non-RAID operating mode said data for storage and addressed to said transport master received at said transport slave is not stored on said second device (*column 4, lines 46-57*).

Regarding claim 7: Barkley et al teach the method of claim 1, wherein said step of providing said data comprises constructing a data packet and providing said data packet to said first device interface and to said second device interface (*column 3, lines 48-52; fig. 1, items 119, 211; note that data packets are inherent to a data link layer*).

Regarding claim 8: Barkley et al teach the method of claim 1, wherein said transport master and said transport slave are interconnected to a host system bus by a system bus interface (*column 1, lines 55-64; fig. 1, items 112, 114, 116, and 134*).

4. Claims 16-21 are rejected under 35 U.S.C. 102(e) as being unpatentable by Rust et al (U.S. Patent No. 6,801,954 B1).

Regarding claim 16: Rust et al teach a RAID controller (*fig. 3, items 82a-b*), comprising:

a system bus interface(*column 4, lines 10-12; fig. 2, items 58*);
a transport master interconnected to said system bus interface (*column 13, lines 17-23; fig. 3, items 54a-b*);
a first device interface interconnected to said transport master (*column 7, lines 46-56*);
a transport slave interconnected to said system bus interface (*column 13, lines 17-23; fig. 3, items 54a-b*); and
a second device interface interconnected to said transport master, wherein at least one of a command and data addressed to said transport master and received at said system bus interface is passed to said transport master and is passed to said transport slave substantially simultaneously (*column 7, lines 46-56*).

Regarding claim 17: Rust et al teach the RAID controller of claim 16, wherein in a first mode of operation at least one of a command and data received at said transport master is provided to said first device interface and said at least one of a command and data received at said transport slave is provided to said second device interface (*column 10, lines 55-65*).

Regarding claim 18: Rust et al teach the RAID controller of claim 17, wherein in a second mode of operation data received at said transport master is provided to said

first device interface, and wherein said data received at said transport slave is not provided to said second device interface (*column 11, lines 60-67*).

Regarding claim 19: Rust et al teach the RAID controller of claim 16, further comprising:

a multiplexer (*fig. 6, item 604*), comprising a first input interconnected to said first device interface, a second input interconnected to said second device interface, and an output interconnected to said transport master (*column 9, lines 29-44*).

Regarding claim 20: Rust et al teach the RAID controller of claim 19, wherein in a normal operating mode data read from said first device is provided to said multiplexer (*fig. 6, item 604*), wherein said data read from said first device is provided to said transport master, wherein data read from said second device is provided to said transport slave and to said multiplexer, and wherein said data read from said second device is not passed by said multiplexer to said transport master (*column 8, lines 66-67; column 10, lines 20-25*).

Regarding claim 21: Rust et al teach the RAID controller of claim 19, wherein in a failover mode data read from said first device is provided to said multiplexer (*fig. 6, item 604*), wherein said data read from said first device is not passed by said multiplexer to said transport master, wherein data read from said second device is provided to said transport slave and to said multiplexer, and wherein said data read from said second device is passed by said multiplexer to said transport master (*column 8, lines 66-67; column 10, lines 20-25*).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-5, and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barkley et al (U.S. Patent No. 6,389,493 B1) in view of Rust et al (U.S. 6,801,954 B1).

Regarding claim 3: Barkley et al disclose the invention substantially as claimed. Barkley et al teach the method of claim 2, wherein said requested data from said first device is not provided to said host and said requested data from said second device is provided by said transport slave to said host (*column 2, lines 10-16*).

However Barkley et al is silent on the above teaching in a failover mode context. In the same field of endeavor, Rust et al disclose "*two mirrored memories that further maintain two duplicative copies of a write cache, each write cache temporarily stores data before it is written out to the disk array. A possible point of failure can occur and corrupt both memories in the transports and this invention provides a failover solution to that problem*" [see Rust, column 4, lines 55-56].

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Rust et al's teachings of

possible single points failure with the teachings of Barkley et al, for the purpose of improving the ability of a network *"to facilitate intelligent memory management and allow the system to optimize performance and security "* as stated by Rust in lines 38-40 of column 2.

Regarding claim 4: The combination Barkley-Rust teaches the method of claim 1, further comprising:

passing a write confirmation signal from said first device interface to said transport master; and passing a write confirmation signal from said second device interface to said transport slave [see *Rust*, column 7, lines 20-28]. By this rationale **claim 4** is rejected.

Regarding claim 5: The combination Barkley-Rust teaches et al teach the method of claim 1, further comprising:

passing a write confirmation signal from said first device interface to said transport master [see *Rust*, column 7, lines 20-40];

passing a write failure signal from said second device interface to said transport slave[see *Rust*, column 4, lines 55-65];

providing said write failure signal to said transport master; and notifying said host of said write failure signal [see *Rust*, column 7, lines 45-56]. By this rationale **claim 5** is rejected.

Regarding claim 9: The combination Barkley-Rust teaches the method of claim 1, wherein said method implements a RAID level 1 storage scheme [see *Rust*, column 1, lines 46-49; column 5, lines 31-36]. By this rationale **claim 9** is rejected.

Regarding claim 10: Barkley et al disclose the invention substantially as claimed. Barkley et al teach a method for storing and retrieving data in a system, comprising:

receiving data for storage from a first communications bus at a system bus interface, wherein said data for storage is addressed to a transport master (*fig. 1, item 112; column 1, lines 55-61; it is important to note that the master card coupled to the bus is our transport master*);

providing said data for storage to said transport master (*fig. 1, items 124, 126, and 130; column 4, lines 30-37*);

providing said data for storage to a transport slave at substantially the same time said data for storage is provided to said transport master (*fig. 1, item 116; column 1, lines 55-67; column 2, lines 1-3; it is important to note that the slave cards are the transport slave*); and

storing said data in a first storage device and a second storage device (*fig. 1, items 124, 218; column 4, lines 30-33; column 8, lines 57-61*).

However Barkley et al is silent on the step of storing and retrieving data in a RAID 1 system, enabling a RAID 1 operation.

In the same field of endeavor, Rust et al disclose "*Rust et al disclose an innovative RAID memory transaction manager that supports concurrent transaction processing modules, while providing for mirrored transactions that move data to multiple*

Art Unit: 2143

destinations efficiently and with atomicity" [see *Rust*, column 1, lines 45-49; column 6, lines 39-56].

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Rust et al's teachings of the RAID 1 system with the teachings of Barkley et al, for the purpose of improving the ability of a network *"to avoid inefficient use of memory and loss of messages in a queue associated with slave or master cards"* as stated by Rust in lines 39-46 of column 1.

Regarding claim 11: The combination Barkley-Rust teaches the method of claim 10, wherein said step of enabling RAID 1 operation comprises enabling said transport slave to act on at least one of commands and data addressed to said transport master [see *Rust*, column 13, lines 17-24]. By this rationale **claim 11** is rejected.

Regarding claim 12: The combination Barkley-Rust teaches the method of claim 11, wherein a RAID 1 enable signal is provided to enable RAID 1 operation [see *Rust*, column 5, lines 10-22]. By this rationale **claim 12** is rejected.

Regarding claim 13: The combination Barkley-Rust teaches the method of claim 12, wherein said RAID 1 enable signal is generated by at least one of a host processor and a local processor [see *Rust*, column 5, lines 23-30]. By this rationale **claim 13** is rejected.

Regarding claim 14: The combination Barkley-Rust teaches the method of claim 10, further comprising retrieving data from said first and second storage devices, wherein said data retrieved from said first storage device is passed to said transport master, and wherein said data retrieved from said second device is passed to said transport slave [see *Rust*, column 8, lines 25-36]. By this rationale **claim 14** is rejected.

Regarding claim 15: The combination Barkley-Rust teaches the method of claim 14, wherein a request for data addressed to said transport master is provided to said transport master at substantially the same time that said request for data is provided to said transport slave [see *Rust*, column 7, lines 46-56]. By this rationale **claim 11** is rejected.

Conclusion

7. Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914. The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley, can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3719.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Jude Jean-Gilles
Patent Examiner
Art Unit 2143

JJG

November 12, 2004

William C. Vaughn, Jr.
Primary Examiner
Art Unit 2143
William C. Vaughn, Jr.

